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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PANG, ROGER L

ART UNIT PAPER NUMBER

3681

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/763,445	<b>Applicant(s)</b> BEATY ET AL.	
	<b>Examiner</b> Roger L. Pang	<b>Art Unit</b> 3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 January 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-5,7-9,11-14,16-20,22-28,30,31,33-35,37-39,41 and 49-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,9,11-14,16-20,22-28,30,31,33,35,37-39,41 and 49-59, 61-66 is/are rejected.
- 7) ☒ Claim(s) 7,8,34 and 60 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

The following action is in response to the amendment filed for application 10/763,445 on January 25, 2006.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14, 16-20, 22-27 and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. With regard to claim 14, in claim 1, the ratio gears have already been claimed to be “engaged by a clutch.” Therefor, the limitations on lines 1-2 of claim 14 are repetitive. With regard to claim 16, on line 11, --the other-- should be inserted after “rotational output in.” Otherwise, the second path could just be power (rotational or non-rotational) going into the same motor-generator and then out, which is not the second power path. With regard to claim 41, in claim 28, the ratio gears have already been claimed to be “engaged by a clutch.” Therefor, the limitations on lines 1-2 of claim 41 are repetitive.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 16-18, 20, 22-26, 28-31, 33, 35, 37-39, 62-66 are rejected under 35 U.S.C. 102(e) as being anticipated by Komeda '934. With regard to claim 16, Komeda teaches a power train system, comprising: a prime mover 1; a change-gear transmission 3 that includes an input, at least two gear ratios and an output; a first motor-generator 34 connected to the input and a second motor-generator 35 connected to the output, a first power path between the input and the output of the transmission, the first power path defined by the gear ratios of the transmission (Fig. 2); and a second power path between the input and the output of the transmission, the second power path including a transfer of power from a rotational input to a non-rotational

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power transfer medium in one of the first motor-generator and the second motor-generator, and a transfer of power from the non-rotational power transfer medium to a rotational output in the other one of the first motor-generator and the second motor-generator (Col. 6). With regard to claim 17, Komeda teaches the system, wherein the first and second motor-generators are configured to route power through the second power path such that the power applied to the input is substantially similar to the power applied to the output during a gear change event (Fig. 4). With regard to claim 18, Komeda teaches the system, wherein the first motor-generator is a generator and the second -motor generator is a motor when the driveline torque is positive (Col. 8). With regard to claim 20, Komeda teaches the system, wherein the second power path includes electric power generated by one of the first and second motor-generators (Fig. 3). With regard to claim 22, Komeda teaches the system, wherein the first 34 and second 35 motor-generators are either a motor or a generator. With regard to claim 23, Komeda teaches the system, wherein the input is an input shaft and the output is an output shaft (Fig. 2). With regard to claim 24, Komeda teaches the system, wherein the second power path includes an energy storage device 43. With regard to claim 25, Komeda teaches the system, wherein the energy storage device 43 stores electric power or fluid power. With regard to claim 26, Komeda teaches the system, wherein the ratio gears are engaged by a clutch 23 and the power shunt is configured to route power applied to the transmission by one of the input and the output to the other one of the input and the output such that power transmitted between a selected ratio gear and an engaging clutch significantly decreases or falls to zero (t3-t4). With regard to claim 28, Komeda teaches a powertrain system, comprising: a change-gear transmission 3 including an input, at least two selectable gear ratios, and an output; and a power shunt including a first motor-

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generator 34 and a second motor-generator 35, that selectively shunts at least a portion of the power applied to the transmission by one of the input and the output to the other one of the input and the output, wherein the first motor-generator selectively generates a power output from a rotational input 6, the second motor-generator selectively generates a rotational output 36 from a power input, and wherein the ratio gears are engaged by a clutch 23 and the power shunt is configured to route power applied to the transmission by one of the input and the output to the other one of the input and the output such that the power transmitted between a selected ratio gear 12 and an engaging clutch 23 significantly decreases or falls to zero (Col. 9). With regard to claim 30, Komeda teaches the system, wherein the first motor-generator 34 is connected to the input and the second motor-generator 35 is connected to the output. With regard to claim 31, Komeda teaches the system, wherein the first and second motor-generators are electric motor-generators 34/35. With regard to claim 33, Komeda teaches the system, wherein the first motor-generator is a generator and the second motor-generator is a motor when driveline torque is positive (Col. 8). With regard to claim 35, Komeda teaches the system, wherein the power shunt includes electric power generated by one of the first and second motor-generators (to 43). With regard to claim 37, Komeda teaches the system, wherein the input is an input shaft 7 and the output is an output shaft 8. With regard to 38, Komeda teaches the system, wherein the power shunt includes an energy storage device 43. With regard to claim 39, Komeda teaches the system, wherein the energy storage device 43 stores electric power or fluid power. With regard to claims 62 and 65, Komeda teaches the system, wherein all power produced by the prime mover selectively flows through the second power path while no power flows through the first power path (t3-t4). With regard to claim 63, Komeda teaches the system, wherein the first

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motor-generator generates an electrical current from the rotation of the input, at least a portion of the electrical current is routed to the second motor generator, and the second motor generator receives the at least a portion of the electrical current and causes rotation of the output (Col. 4).

With regard to claim 64, Komeda teaches the system, wherein the selection of a gear ratio is accomplished by engaging at least a portion of a clutch 23 to at least a portion of a gear 12. With regard to claim 66, Komeda teaches the system, wherein the power shunt selectively shunts no power produced by the prime mover from the prime mover the output, and about all power produced by the prime mover is selectively transmitted through the gear ratios (during full engagement).

Claims 1, 3-5, 9-14, 28-31, 35-41, 59, 61, 64 and 66 are rejected under 35 U.S.C. 102(b) as being anticipated by Bowen '291. With regard to claims 1 and 28, Bowen teaches a powertrain system, comprising: a prime mover 18; a change-gear transmission 20 including an input, at least two selectable gear ratios, and an output, wherein at least the prime mover selectively applies power to the transmission; and a power shunt including a first motor-generator 120 and a second motor-generator 122, that selectively shunts at least a portion of the power applied to the transmission by one of the input and the output to the other one of the input and the output (page 3), wherein the first motor-generator selectively generates a power output from a rotational input (page 4), the second motor-generator selectively generates a rotational output from a power input (page 4), and wherein the ratio gears are engaged by a clutch 112 and the power shunt is configured to route power applied to the transmission by one of the input and the output to the other one of the input and the output such that the rotational speed of a ratio gear 102 is substantially similar to the rotational speed of an engaging clutch during a gear ratio

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change (page 4). With regard to claims 3 and 30, Bowen teaches the system, wherein the first motor-generator 120 is connected to the input and the second motor-generator 122 is connected to the output. With regard to claim 4, Bowen teaches the system, wherein the first motor-generator 120 is driven by the prime mover. With regard to claims 5 and 31, Bowen teaches the system, wherein the first and second motor-generators are electric motor-generators 120/122. With regard to claims 9 and 35, Bowen teaches the system, wherein the power shunt includes electric power generated by one of the first and second motor-generators (page 3). With regard to claims 11 and 37, Bowen teaches the system, wherein the input is an input shaft and the output is an output shaft (Fig. 2). With regard to claims 12 and 38, Bowen teaches the system, wherein the power shunt includes an energy storage device 124. With regard to claims 13 and 39, Bowen teaches the system, wherein the energy storage device 124 stores electric power or fluid power. With regard to claims 14 and 41, Bowen teaches the system, wherein the power shunt is configured to route power applied to the transmission by one of the input and the output to the other one of the input and the output such that power transmitted between a selected ratio gear 2 and an engaging clutch 112 significantly decreases or falls to zero. With regard to claims 59 and 64, Bowen teaches the system, wherein the selection of a gear ratio is accomplished by engaging at least a portion of a clutch 112 to at least a portion of a gear 102. With regard to claims 61 and 66, Bowen teaches the system, wherein the power shunt selectively shunts no power produced by the prime mover from the prime mover the output, and about all power produced by the prime mover is selectively transmitted through the gear ratios (once engaged, and motor-generators are shut off; page 4).



Claims 49 and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by Loeffler '127. With regard to claim 49, Loeffler teaches a powertrain system, comprising: a change-gear transmission 38 including an input, at least two gear ratios, and an output (Fig. 1), a prime mover 12 connected to the input and configured to apply power to the transmission; and a motor-generator 22, wherein at least a portion of the motor generator 33 is coupled to at least a portion of the output 35 with no clutch operably interposed therebetween, and wherein the motor generator selectively absorbs or applies power to the output in conjunction with a corresponding increase or decrease, respectively, in the application of power by the prime mover to the transmission to facilitate a gear ratio change in the transmission (Col. 3). With regard to claim 53, Loeffler teaches the system, wherein the gear ratio change is accomplished by engaging at least a portion of a clutch 42 to at least a portion of a gear (Fig. 1).

Claims 54-58 are rejected under 35 U.S.C. 102(b) as being anticipated by Schmidt '757. With regard to claim 54, Schmidt teaches a powertrain system, comprising: a change-gear transmission 10 including an input 12, at least two selectable gear ratios H/L, and an output; a prime mover 14 for selectively applying power to the transmission; and a power shunt 56/72, wherein the power shunt generates a rotational output from a power input, and the power shunt further generates a power output from a rotational input (Col. 10), and at least one of the power input and the power output are generated in a power transfer media that can be selectively stored (via 74). With regard to claim 55, Schmidt teaches the system, wherein the power shunt is at least partially defined by a flow of electric power (Col. 10). With regard to claim 56, Schmidt teaches the system, wherein the electric power may be stored in an energy device 74. With

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regard to claim 57, Schmidt teaches the system, wherein the power shunt includes a first motor-generator 56 and a second motor-generator 72. With regard to claim 58, Schmidt teaches the system, wherein the power output is generated as electrical power (Col. 10).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loeffler as applied to claim 49 above, and further in view of Hu '455. With regard to claim 50, Loeffler teaches the system wherein electricity can be generated by the electric machine 22 and sent to onboard electronics, and also the need of an exciter current from an energy source (Col. 3), however Loeffler lacks the specific teaching of an electric energy storage device. Hu teaches a hybrid vehicle wherein electric energy is generated by an electric machine 20, which is then sent to an energy storage device 50, which is also used for onboard electronics (paragraph 12). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Loeffler to employ an electric energy storage device in further view of Hu in order to collect surplus energy generated during generator modes while still being able to power the electric system of the motor vehicle. With regard to claim 51, Hu teaches the system, wherein the stored power is stored electrochemically (via 50).

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Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Loeffler in view of Hu as applied to claim 50 above, and further in view of Komeda. With regard to claim 52, Loeffler in view of Hu teach of the system wherein the stored power is stored in an energy storage device, but lack the teaching of said device comprising of a capacitor. Komeda teaches a hybrid vehicle, wherein the energy storage device is a capacitor (Col. 10, lines 9-13). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Loeffler in view of Hu to employ a capacitor as the energy storage device in further view of Komeda, since a battery and capacitor are known equivalents in the art (Col. 10, line 13).

***Allowable Subject Matter***

Claims 7-8, 34, and 60 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 19 and 27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

Applicant's arguments with respect to claims 1, 16, 28, and 49 have been considered but are moot in view of the new ground(s) of rejection.

Please note: although applicant claims that claim 1 (and 28) is just claims 1,2 and 15 (28, 29, and 40) combined, there are new additional limitations in the independent claim.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Aoki and Bader '848 have been cited to show similar controls and systems.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

**FACSIMILE TRANSMISSION**

Submission of your response by facsimile transmission is encouraged. The central facsimile number is (571) 273-8300. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase a patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such submission will place the response directly in our examining group's hands and will eliminate Post Office processing

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and delivery time as well as the PTO's mail room processing and delivery time. For a complete list of correspondence not permitted by facsimile transmission, see MPEP 502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check should not be submitting by facsimile transmission separately from the check.

Responses submitted by facsimile transmission should include a Certificate of Transmission (MPEP 512). The following is an example of the format the certification might take:

I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office (Fax No. (571) 273-8300) on \_\_\_\_\_ (Date)

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(Signature)

If your response is submitted by facsimile transmission, you are hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and MPEP 502.02). Please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up copy of the response after your


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response has been transmitted by facsimile will only cause further unnecessary delays in the processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roger L. Pang whose telephone number is 571-272-7096. The examiner can normally be reached on 5:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Roger L. Pang  
Primary Examiner  
Art Unit 3681

March 3, 2006